What Is Claimed Is:

1. A connector assembly for joining a graft vessel to a target vessel, the connector assembly comprising:

a tubular connector member provided with a plurality of tines at a distal end thereof, the tines in an unstressed state extending inwardly toward a central axis of the connector member, the tines being provided at distal ends thereof with vessel engaging structure;

a spreader portion comprising a tubular body slidably disposed in said connector member and movable in the connector member to engage the tines and extend the tines in directions outwardly from the connector member central axis; and

a seal portion slidably disposed around said connector member and provided with vessel engaging structure at a distal end thereof;

wherein the connector member *vessel* engaging structure is adapted to engage end portions of the graft vessel within the target vessel and urge the

graft vessel end portions proximally, and the seal portion vessel engaging structure is adapted to engage wall portions of the target vessel adjacent the graft vessel and urge the target vessel wall portions distally toward the graft vessel end portions.

2. The connector assembly in accordance with claim 1 wherein each of the tines comprises a leg portion inclining inwardly toward the connector member central axis and the connector member vessel engaging structure comprises at least in part a flange portion at a distal end of each of said leg portions and extending in a direction substantially radially outwardly from the connector member central axis for engagement with the graft vessel end portions.

3. The connector assembly in accordance with claim 2 wherein the connector member vessel engaging structure further comprises a sharp end portion extending from a distal end of each of said tine flange portions.

4. The connector assembly in accordance with claim 3 wherein said sharp end portions extend proximally from said tine flange portion.

5. The connector assembly in accordance with claim 1 wherein said spreader portion is adapted to force the tines into positions substantially disposed in a hypothetical extension of tubular walls of said connector member.

6. The connector assembly in accordance with claim 1 wherein the seal portion vessel engaging structure comprises flanges at a distal end thereof for engagement with target vessel wall areas proximate the graft vessel.

7. The connector assembly in accordance with claim 6 wherein the seal portion vessel engaging structure further comprises sharp end portions protruding from said flanges.

8. The connector assembly in accordance with claim 1 wherein said seal portion vessel engaging structure comprises sharp end portions extending from distal ends of said seal portions.

9. The connector assembly in accordance with claim 1 wherein said spreader portion and said seal portion are connected together.

10. A connector assembly for joining a graft vessel to an opening in a target vessel, the connector assembly comprising:

a tubular connector member provided with a plurality of tines at a distal end thereof, the tines extending inwardly toward a central axis of the connector member and then substantially radially outwardly from the central axis of the connector member and then proximally at sharp ends thereof, the tines being adapted to engage end portions of the graft vessel and thereafter wall portions of the target vessel;

a spreader portion comprising a tubular body slidably disposed in the tubular connector member and movable in the tubular connector member to engage the inwardly extending tines and force the tines into positions substantially disposed in a hypothetical extension of walls of the tubular connector member; and

a seal portion slidably disposed around the tubular connector member and provided with flanges at a distal end thereof for engagement with the target vessel in wall areas proximate the tines to clamp target vessel wall portions to the tines.

11. A connector assembly according to claim 10, wherein the portions of the connector assembly shield the connector assembly from blood flow.

12. A deployer assembly for effecting operation of a connector assembly for joining a graft vessel to an opening in a target vessel, the connector assembly comprising:

a connector member provided at a distal end thereof with tines each provided at a distal end thereof with vessel engaging structure;

a spreader portion movable in the connector member to engage the tines and extend the tines outwardly from a connector member central axis; and

a seal portion movable on the connector member and provided with vessel engaging structure at a distal end thereof;

the deployer assembly comprising:

a grabber comprising an elongated tubular member having an open distal end and a side opening proximate the grabber distal end, the side opening being adapted to receive the graft vessel and the open distal end being adapted for passing an end of the graft vessel therethrough to extend distally therefrom, said grabber further comprising lugs for locking the connecting member in said grabber;

a holder disposed within said grabber and having a side opening adapted for alignment with the grabber side opening for receiving the graft vessel, said

holder having an open distal end, and slots adapted to receive connector member flanges;

said grabber being rotatable on said holder to cause said grabber lugs to slide into position to lock in place the connector member flanges to hold the connector member in the deployer assembly; and

a pusher disposed in said holder and having a distal portion engagable with the connector assembly spreader portion to move the spreader portion into engagement with the tines and to move said seal portion into engagement with a juncture of the graft vessel and the target vessel.

13. The deployer assembly in accordance with claim 12 wherein said grabber is provided with a widthwise slot, said holder is provided with an aperture for alignment with said grabber slot, and said pusher is provided with a lengthwise slot for alignment with the aperture, and the deployer assembly further comprises a pin extending through the grabber slot, the holder aperture, and the pusher slot, whereby said grabber is movable rotatably on said holder, and said

pusher is movable axially in said holder, the rotatable movement of said grabber being limited by said pin in the grabber slot, and the axial movement of said pusher being limited by said pin in the pusher slot.

14. A method for joining a graft vessel to an opening in a target vessel, the method comprising the steps of:

providing a connector assembly having structure at a distal end thereof for supporting an everted end of the graft vessel and for exerting proximally directed pressure on the graft vessel everted end;

providing a deployer assembly for holding, manipulating, and releasing the connector assembly;

attaching the connector assembly to the deployer assembly;

extending the graft vessel through the deployer assembly and the connector assembly with a distal end of the graft vessel extending distally of the distal end of the connector assembly;

everting the distal end of the graft vessel back upon the connector assembly graft vessel supporting structure;

producing an opening in the target vessel if one is not already available;

manipulating the deployer assembly to move the everted end of the graft vessel through the target vessel opening, into the target vessel, and into engagement with an interior wall of the target vessel around the opening therein;

manipulating the deployer assembly to move the connector assembly pressure exerting structure into engagement with an exterior wall of the target vessel proximate the everted end of the graft vessel; and

disconnecting the deployer assembly from the connector assembly;

whereby to hold the everted end of the graft vessel and an area of the target vessel adjacent the graft vessel between the connector assembly pressure exerting structure and the connector assembly graft supporting structure.

15. The method in accordance with claim 14 wherein the connector assembly comprises a connector member having a body portion and tines extending from a distal end of the body portion, and a spreader portion for engaging the tines to move distal ends of the tines in directions radially outwardly from a centerline of the connector member, the tines having the vessel supporting structure at their distal ends; and

the deployer assembly comprises a pusher for engagement with the connector member; and

the step of manipulating the deployer assembly to move the end of the graft vessel into engagement with the interior wall of the target vessel comprises:

manipulating the pusher to move the connector assembly spreader portion into engagement with the tines to cause the tine vessel supporting structure to move radially outwardly; and

moving the deployer assembly proximally to cause the tine vessel supporting structure to move the end of the graft vessel into engagement with the interior wall of the target vessel.

16. The method in accordance with claim 15 wherein the tine vessel supporting structure comprises sharp end portions; and

the steps of moving the tine vessel supporting structure radially outwardly comprises moving the sharp end portions into piercing engagement with the graft vessel everted end portion; and

the step of moving the deployer assembly proximally comprises moving the tine sharp end portions into piercing engagement with the target vessel wall adjacent the graft vessel.

17. A method according to claim 14, wherein the everted end of the graft vessel shields the connector assembly from blood flow.

18. A method for joining a graft vessel to an opening in a target vessel, the method comprising the steps of:

providing a connector assembly having at a distal end thereof tines having sharp end portions at distal ends thereof for penetrating the graft vessel, for

supporting an everted end of the graft vessel, and for exerting proximally directed pressure on the graft vessel everted end, and having a seal portion for exerting distally directed pressure on the target vessel wall;

providing a deployer assembly for holding, manipulating, and releasing the connector assembly;

attaching the connector assembly to the deployer assembly;

extending the graft vessel through the deployer assembly and the connector assembly with a distal end of the graft vessel extending distally of the distal end of the connector assembly;

everting the distal end of the graft vessel back upon the connector assembly sharp end portions;

producing an opening in the target vessel if one is not already available;

manipulating the deployer assembly to move the connector assembly tines and the everted end of the graft vessel through the target vessel opening, into the target vessel, and into engagement with an interior wall of the target vessel around the opening therein;

manipulating the deployer assembly to move the connector assembly seal portion pressure exerting structure into engagement with an exterior wall of the target vessel proximate the everted end of the graft vessel; and

disconnecting the deployer assembly from the connector assembly;

whereby to hold the everted end of the graft vessel and an area of the target vessel adjacent the graft vessel between the connector assembly tines and the connector assembly seal portion.

19. A method for joining a graft vessel to an opening in a target vessel, the method comprising the steps of:

providing a connector assembly comprising:

a tubular connector member provided with a plurality of tines, the tines in an unstressed state extending inwardly toward a central axis of the connector member, the tines being provided with vessel engaging structure;

a spreader portion comprising a body movable in the connector member to engage the tines and extend the tines in directions outwardly from the connector member central axis; and

a seal portion disposed around the connector member and provided with vessel engaging structure;

providing a deployer assembly for holding, manipulating, and releasing the connector assembly;

attaching the connector assembly to the deployer assembly;

manipulating the deployer assembly to move the spreader portion of the connector assembly to engage the tines and extend the tines outwardly from the connector member central axis;

extending the graft vessel through the deployer assembly and centrally of the outwardly extending tines with a distal end of the graft vessel extending distally of the distal end of the connector assembly;

manipulating the deployer assembly to withdraw the spreader portion of the connection assembly to disengage from the tines to permit the tines to resume the unstressed state;

everting the distal end of the graft vessel back upon the tubular connector member;

producing an opening in the target vessel if one is not already available;

manipulating the deployer assembly to move the everted end of the graft vessel through the target vessel opening, into the target vessel, and into engagement with an interior wall of the target vessel around the opening therein;

manipulating the deployer assembly to move the connector assembly seal portion into engagement with an exterior wall of the target vessel proximate the everted end of the graft vessel; and

disconnecting the deployer assembly from the connector assembly;

whereby to hold the everted end of the graft vessel and an area of the target vessel adjacent the graft vessel between the connector assembly connector member and the connector assembly seal portion.

20. The method in accordance with claim 19 wherein moving the everted end of the graft vessel

through the target vessel opening and into the target vessel comprises moving the tines outwardly into penetrating engagement with the graft vessel and moving the connector member and the everted end of the graft vessel affixed to the tines into the target vessel; and

wherein moving the everted end of the graft vessel into engagement with the interior wall of the target vessel comprises moving the tines into penetrating engagement with the target vessel interior wall.